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This remarkably distinct species requires little comparison with the other forms at present known. The plain brown tibiae and the remarkable venation will serve to distinguish the species at a glance.

EXPLANATION OF PLATE XVI.

These figures show the venation, and the main features of color-pattern.

a, wing of *Brachypremna similis* Williston.

b, wing of *Brachypremna dispellens* Walker.

c, wing of *Brachypremna unicolor* Osten Sacken.

d, wing of *Brachypremna breviventris* Wiedemann.

e, wing of *Brachypremna williamsoni*, n. sp.

f, wing of *Brachypremna candida*, n. n.

STUDIES IN ITONIDIDÆ.

BY E. P. FELT,

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Below we erect two new genera, describe a number of new species and establish more fully the identity of one of the earlier described forms. The last is to us more satisfactory than characterizing new genera or new species. There are a multitude of forms in this family of minute flies and much biological and systematic awaits the investigator. References to the genus *Dicrodiplosis* must be considered provisional, since we have placed in this group a number of dissimilar forms, some of which are hardly cogeneric, because we deem it unwise to attempt a division of the species till more abundant data are available.

NEOCATOCHA, new genus.

This remarkable form has the venation of *Catocha* and the greatly reduced antennæ of *Microcerata*, from which latter it is easily distinguished by the normal second antennal segment. The short, sessile, flagellate antennal segments and the characteristic venation serve to separate this genus from *Neptunimyia*. The type species is *N. marilandica* n. sp.

Neocatocha marilandica, new species.

Female.—Length 1.75 mm. Antennæ short, dark brown; 8 segments, the

first and second normal, the fifth sessile, subglobose, with a length slightly greater than its diameter, irregularly and sparsely clothed with short setæ and subapically with a whorl of probably four short, stout, fleshy appendages; terminal segment compound, composed of three closely fused, and with a length about four times its greatest diameter. Palpi: first segment irregularly quadrate, the second and third subequal, each with a length $2\frac{1}{2}$ times the diameter, the fourth a little longer, more slender. Eyes moderate, black, coarsely granulate; ocelli present. Mesonotum dark reddish brown. Scutellum yellowish brown, postscutellum slightly darker. Abdomen mostly dark yellowish brown. Wings hyaline. Halteres yellowish brown. Legs mostly dark yellowish brown; claws moderately stout, strongly curved, simple, the pulvilli as long as the claws. Ovipositor short, the lobes triarticulate, the distal segment suborbicular. Ventrally, on the 9th segment, there is a pair of submedian, fuscous, pyriform appendages. Type C. 1390.

One female was taken by Dr. W. L. McAtee on Plummers Island, Maryland, March 24, 1907.

NEPTUNIMYIA, new genus.

This genus is erected for a unique form representing an intermediate stage in development between *Lestremia* and the highly reduced antennal structures of *Microcerata* and *Tritozyga*. It is more closely allied to the former though easily separated therefrom by the normal second antennal segment, the tridentate antennal appendages and the stoutly pectinate claws. The type species is *N. tridens* n. sp.

Neptunimyia tridens, new species.

Female.—Length 2.75 mm. Antennæ hardly extending to the base of the abdomen, sparsely haired, fuscous yellowish, the basal segments yellowish; 9 to 11 segments, the first obconic, the second short, subglobose, not enlarged, the fifth fusiform, with a length $2\frac{1}{2}$ times its diameter, a sparse, subbasal whorl of stout setæ and subapically a whorl of two or more irregularly tri- or quadridentate sensory structures; terminal segment narrowly conical, with a length three times its diameter and tapering uniformly to an obtuse apex. Palpi quadriarticulate, yellowish white, nearly as long as the antennæ, the first segment with a length about three times its diameter, somewhat swollen distally, the following segments, each about $\frac{1}{2}$ longer and more slender than the preceding. Eyes brownish black. Mesonotum dark brown, sparsely haired. Scutellum yellowish brown, postscutellum fuscous yellowish, dark brown posteriorly. Abdomen fuscous yellowish, the incisures and pleuræ dull yellowish orange. Ovipositor fuscous yellowish. Wings hyaline, costa dark brown, subcosta uniting there-with at the basal third; the third vein, broadly and closely united to subcosta at its distal sixth, joins the margin at the distal fourth; the slender fourth vein

arises from the third vein near its union with subcosta, branches near the middle of the wing, the anterior fork joining the margin at the apex of the wing, the posterior branch nearly midway between the anterior fork and the simple fifth vein, which latter unites with the posterior margin at the distal fourth, the sixth near the basal half; membrane rather thickly clothed with relatively long hairs. Halteres dull fuscous yellowish. Coxæ dull yellowish, the femora basally yellowish straw, the distal portion fuscous yellowish; tibiæ and tarsi darker; claws stout, strongly curved, the concavity stoutly pectinate; pulvilli nearly as long as the claws. Ovipositor short, apparently biarticulate, the first segment irregularly triangular, the second narrowly oval, both thickly setose.

Exuvia.—Length 1.5 mm., whitish transparent, the short antennal cases moderately stout, the wing pads extending to about the fourth abdominal segment, the anterior margin in particular being fuscous, the leg cases reaching to the tip of the abdomen; the thorax dorsally, and pleuræ with a few scattering, long, slender setæ, the surface of the abdomen with numerous transverse lines of microscopic denticulations. Type Cecid a1495a.

The unique female described above was reared April 17, 1911, from a jar containing maple leaves infested last year with the larva of *Cecidomyia ocellaris* O. S. It is possible that the insect developed from the very slight amount of decaying organic matter brought in with the sand. We are unwilling to believe that it is the parent of the semitransparent larvæ producing in midsummer the numerous ocellate galls on soft maple leaves.

***Porricondyla dorsata*, new species.**

Female.—Length 2.5 mm. Antennæ nearly as long as the body, light brown, sparsely haired; 12 segments, the fifth with a stem $\frac{1}{2}$ the length of the cylindric basal enlargement, which latter has a length four times its diameter; terminal segment produced, with a length nearly five times its diameter, irregularly obtuse apically. Palpi: first and second segments subequal, each with a length about three times the diameter, the third $\frac{1}{2}$ longer than the second, the fourth $\frac{1}{2}$ longer than the third. Mesonotum almost black. Scutellum yellowish orange, postscutellum yellowish brown. Abdomen reddish brown, the pleuræ yellowish orange, costa light straw. Halteres yellowish orange. Coxæ and femora pale straw; tibiæ and tarsi fuscous straw; claws slender, evenly curved, unidentate, the pulvilli a little shorter than the claws. Ovipositor lobes narrowly and irregularly oval, sparsely setose. Type Cecid a2349.

The midge described above was taken by Mr. D. B. Young at Dug Mountain in the Adirondacks, August 8, 1912. It is easily separated from other American species of *Porricondyla*, having 12 antennal segments, by the longer stem of the fifth segment.

Porricondyla juvenalis, new species.

Male.—Length 1 mm. Antennæ probably over twice the length of the body, sparsely haired, at least 11 and probably 16 segments, the fifth with a yellowish stem $2\frac{1}{2}$ times the length of the basal enlargement, which latter is dark brown and has a length twice its diameter. Palpi: first segment slender, with a length four times its diameter, the second as long as the first, a little stouter, the third a little longer than the second, more slender, the fourth $\frac{1}{2}$ longer than the third. Mesonotum dark reddish brown. Scutellum reddish white, postscutellum brownish yellow. Abdomen dark yellowish brown, the genitalia fuscous yellowish. Wings hyaline, halteres pale yellowish, reddish brown apically. Coxæ and femora basally mostly pale yellowish, the femora apically and tibiæ dark straw; tarsi fuscous. Genitalia: basal clasp segment quadrate; terminal clasp segment short, greatly swollen, heavily spined apically; dorsal plate long, broad, triangularly emarginate, the lobes obliquely truncate, setose; ventral plate moderately long, broad, deeply and roundly emarginate, the lobes narrowly rounded, setose. Harpes slender, lancetlike, the strongly chitinized apex recurved. Type Cecid a2350.

The interesting form characterized above was taken by Mr. D. B. Young at Elm Lake in the Adirondacks, N. Y., August 7, 1912. It is remarkable because of the greatly prolonged antennal segments and is easily separated from the allied *P. flava* Felt by the lancet-like, recurved harpes.

Rhabdophaga aceris Shimer.

1868. Shimer, Henry, Amer. Ent. Soc. Trans., 1: 281-83 (*Cecidomyia*).
1905. Washburn, F. L., Minn. Agric. Exp't. Sta. Bul. 93, p. 65 (*Cecidomyia*).
1906. Felt, E. P., N. Y. St. Mus. Mem., 8, 2: 728 (*Cecidomyia*).
1911. ———, Econ. Ent. Journ., 4: 452 (*Cecidomyia*).

Male.—Length 1.5 mm. Antennæ as long as the body, sparsely haired, fuscous yellowish; 15 segments, the fifth with a stem $\frac{3}{4}$ the length of the cylindrical basal enlargement, which latter has a length $\frac{1}{2}$ greater than its diameter. Palpi: first segment short, irregular, second irregularly oval, third a little longer and more slender than the second, the fourth $\frac{1}{2}$ longer than the second. Mesonotum dark brown or blackish. Scutellum and postscutellum fuscous yellowish. Abdomen dark brown; genitalia fuscous yellowish. Legs probably fuscous yellowish, the tarsi darker; claws moderately stout, strongly curved, the pulvilli a little shorter than the claws. Genitalia: dorsal plate divided, the lobes narrowly rounded; ventral plate deeply and triangularly emarginate, the harpes broad, the heavily chitinized apex irregularly and coarsely dentate.

Female.—Length 2 mm. Antennæ extending to the third abdominal segment, sparsely haired, fuscous yellowish; 15 sessile segments, the fifth with a length twice its diameter. Abdomen probably reddish brown, ovipositor nearly as long as the abdomen; terminal lobes with a length over twice the width, irregularly and narrowly rounded apically. Other characters nearly as in the male. a2344.

The midge was reared by Dr. Shimer in midsummer from pale or whitish larvæ on the surface of white or silver maple leaves, *Acer saccharinum*. Dr. Shimer states that this species produces whitish cocoons upon the leaves, the midges emerging therefrom a week or two later. We have referred the midges reared from soft maple by J. S. Houser, of the Agricultural Experiment Station, Wooster, Ohio, August 9 and 26, 1912, to this species, and in order to establish its identity more fully give below descriptions of both sexes. The species is closely related to *R. rileyana* Felt, the latter being most easily distinguished by the long fourth palpal segment, it having a length twice that of the third. A study of a large series may show *R. rileyana* to be only a variety of Shimer's species.

Phytophaga ulmi Beutm.

Male.—Length 1.5 mm. Antennæ nearly as long as the body, sparsely haired, dark brown; 14 segments, the fifth with a stem as long as the cylindric basal enlargement, which latter has a length twice its diameter and a thick subapical whorl of long, stout setæ; terminal segment produced, with a length thrice its diameter, strongly tapering apically. Palpi whitish transparent, first segment irregular, subquadrate, the second with a length over twice its diameter, the third over $\frac{1}{2}$ longer than the second, the fourth a little longer than the third. Face fuscous yellowish. Mesonotum yellowish brown, the submedian lines sparsely haired. Scutellum reddish brown, postscutellum fuscous yellowish. Abdomen reddish orange, the dorsal sclerites fuscous. Wings hyaline, costa dark brown. Halteres yellowish transparent, fuscous apically. Coxæ fuscous yellowish, the legs mostly dark brown, the distal tarsal segments darker. Claws slender, strongly curved, the pulvilli as long as the claws. Genitalia: dorsal plate deeply and triangularly emarginate, the ventral plate broad, broadly and roundly emarginate.

Described from a specimen reared June 6, 1912, from galls collected at New Baltimore, N. Y., 21683. This sex was previously unknown. A full description of the female and an account of the species will appear in the writer's monograph of the Itonididæ, now in manuscript.

Contarinia coloradensis, new species.

Gall.—Length 1.25 cm., diameter 1 cm. A budlike deformity covered with brownish scales and in one instance with rudimentary needles.

Larva.—Length 3 mm., moderately stout, a variable yellowish orange. Head small, the antennæ short, stout, unidentate. There is a distinct fuscous ocular spot just behind the head and a well-developed bidentate, somewhat irregular breastbone. Skin coarsely shagreened, the posterior extremity rounded and with a pair of submedian conical brownish tubercles.

Pupa.—Length 2.75 mm., stout, a variable reddish or yellowish, the thoracic horns rather slender. Antennal cases extending to the first abdominal segment. Wing cases to the third, and the longest leg cases to the fifth abdominal segment, each of the latter dorsally margined posteriorly with an irregular row of rather long, stout spines.

Female.—Length 2.5 mm. Antennæ extending to the third abdominal segment, sparsely haired, dark brown, lighter distally; 14 segments, the fifth with a stem $\frac{1}{4}$ the length of the cylindric basal enlargement, which latter has a length $2\frac{1}{4}$ times its diameter, sparse subbasal and subapical whorls of stout setæ and distinct circumfilii; terminal segment somewhat reduced, obtuse apically. Palpi yellowish, first segment irregular, the second subquadrate, with a length $\frac{1}{2}$ greater than its diameter, the third nearly twice the length of the second, slender, the fourth about as long as the third, slightly dilated apically. Mesonotum slaty brown, the submedian lines thickly haired. Scutellum and post-scutellum reddish brown, abdomen yellowish brown, the fifth and sixth segments somewhat lighter, the incisures fuscous yellowish, yellowish apically. Costa fuscous yellowish. Halteres fuscous yellowish, fuscous subapically. Coxæ and femora basally fuscous yellowish, the distal portion of femora, tibiæ and tarsi mostly fuscous, the simple claw stout and a little shorter than the pulvilli. Ovipositor filiform, as long as the body, the terminal lobes slender, tapering, with a length five times the width. Type Cecid a2205a.

A large, budlike deformity on *Pinus scopulorum* was received from Prof. E. Bethel, Denver, Col., July 24, 1911, and the same gall from Prof. C. P. Gillette, of Fort Collins, Col. A species of *Dicrodiplosis*, *D. gillettei*, was reared from this gall and also another midge, probably a species of *Contarinia*, which latter is described above and is presumably the maker of the gall.

***Thecodiplosis dulichii*, new species.**

Male.—Length 1.75 mm. Antennæ a little longer than the body, thickly haired, dark brown; 14 segments, the 3d to 11th binodose, the 5th having the stems with a length $1\frac{1}{2}$ and $3\frac{1}{2}$ times their diameters, respectively. Basal enlargement subglobose, distal enlargement subcylindric, with a length twice its diameter, each with a very short, subapical circumfilium, the distal enlargement with a rather thick subapical whorl of stout setæ, and a scattering subbasal whorl of finer setæ; 12th segment with the enlargement scarcely constricted at the basal third, the 13th and 14th each with a subcylindric basal enlargement, having a length about three times the diameter, and a distal stem about $\frac{3}{4}$ the length of the enlargement. Palpi: first segment irregular, with a length twice its diameter, the second twice as long as the first, the third a little longer than the second, more slender, the fourth $\frac{1}{2}$ longer than the third, slender. Mesonotum brownish red. Scutellum dark red, postscutellum and abdomen reddish orange. Genitalia yellowish orange. Wings hyaline, costa light brown. Halteres yellowish basally, reddish brown apically. Coxæ mostly yellowish orange,

the legs mostly dark brown; claws simple, curved at nearly right angles, greatly swollen subapically, the pulvilli about as long as the claws. Genitalia: basal clasp segment with a large triangular basal lobe internally; terminal clasp segment long, stout, slightly swollen basally; dorsal plate short, broadly and triangularly emarginate and mesially with a moderately deep, narrow incision; ventral plate long, broad, tapering, broadly and roundly emarginate; style long, stout.

Female.—Length 2 mm. Antennæ nearly as long as the body, sparsely haired, fuscous yellowish; 14 segments, the fifth with a stem $\frac{3}{4}$ the length of the cylindric basal enlargement, which latter has a length thrice its diameter; terminal segment produced, the basal enlargement with a length five times its diameter; apically there is a slender, hairy process about $\frac{3}{4}$ the length of the enlargement. Palpi: first segment irregularly subquadrate, the second with a length three times its diameter, the third a little shorter, the fourth $\frac{1}{2}$ longer than the third. Mesonotum yellowish brown, the submedian lines sparsely haired. Scutellum pale orange, postscutellum yellowish. Abdomen yellowish orange. Wings hyaline, costa light straw. Halteres yellowish basally, fuscous apically. Coxæ yellowish, the legs mostly dark brown, the distal tarsal segments especially on the anterior legs, yellowish brown. Ovipositor short, the terminal lobes with a length nearly twice the diameter, broadly rounded apically. Type a2219.

Two males were reared June 3 and 4, 1912, from fruit of *Dulichium arundinaceum* infested by an orange-colored larva some 2 mm. in length and collected in August, 1911, by Miss Cora H. Clarke, Magnolia, Mass. The species is exceedingly interesting because of the extremely short circumfili, the produced distal enlargement and the gradual transition from the binodose to a cylindric stemmed condition in the distal antennal segments. It is allied to *T. mosellana* Gehin and *T. hudsonici* Felt, from which it may be separated by the moderate length of the basal portion of the stem of the 5th antennal segment. A species of *Lestodiplosis* was also reared from this material.

***Thecodiplosis ananassi* Riley.**

The development of the gall is extremely interesting, as evidenced by material received from Marksville, La., from Dr. W. L. McAtee under date of September 12, 1912. The galls appear to originate in small, globose or oval, densely pruinose swellings having rudimentary leaves and near the tips of the smaller, tender shoots. These enlargements vary in length from 5 to 8 mm., they are spongy, the green interior containing a variable number of yellowish larvæ grouped along the central axis much as in the mature, more familiar

type of gall. The tissues at this time are soft and easily torn or cut. The identity of this type of gall with the more familiar form is established by finding on the twigs one gall, the apical portion of which was pruinose and with rudimentary needles, while the basal part had begun to turn brown and assume the characteristics of the mature gall, specimens of which also occurred upon the twigs. The newly developing galls contain small, pale yellowish larvæ scarcely $\frac{1}{2}$ mm. in length, while those on the older portions of the stem are inhabited by reddish orange, half grown larvæ. It would appear from the above as though the flight of the midges and deposition of eggs must extend over some weeks and development be comparatively rapid, otherwise such conditions could hardly obtain. The older galls will undoubtedly produce adults early in the spring, while from the smaller ones midges may not develop till into the summer.

Dicrodiplosis antennata, new species.

Larva.—Length 4 mm., a variable reddish orange, lighter and tapering somewhat at each extremity. Head small, slender, dark, chitinized, apparently greatly produced as a slender, decurved beak; breastbone long, slender, reddish brown and obtusely dentate, each segment ventrally with a transverse row of four light yellowish, rudimentary pseudopods; posterior extremity obtuse, tuberculate. Another larva is somewhat stouter, having a length of 3.5 mm., mostly yellowish and apparently with a shorter breastbone and a somewhat shorter, less distinctly chitinized head. This latter may possibly belong to another species.

Male.—Length 2 mm. Antennæ as long as the body, sparsely haired, the basal enlargement fuscous, the distal enlargement yellowish brown; 14 segments, the fifth having the stems with a length $1\frac{1}{4}$ and twice their diameters, respectively. Palpi: first segment short, irregular, second narrowly oval, with a length $2\frac{1}{2}$ times its diameter, the third $\frac{1}{2}$ longer than the second, moderately stout, the fourth apparently longer than the third, slender. Mesonotum dark brown. Scutellum fuscous yellowish, postscutellum yellowish, posteriorly yellowish brown. Abdomen reddish brown. Genitalia fuscous yellowish. Halteres yellowish apically, reddish brown basally. Coxæ yellowish. Legs mostly fuscous straw. Claws moderately stout, evenly curved, the pulvilli shorter than the claws. Genitalia: terminal clasp segment as long as the basal clasp segment, the latter strongly constricted basally and with a long, triangular lobe internally; dorsal plate deeply and narrowly emarginate, the lobes moderately slender, narrowly rounded and sparsely setose; ventral plate long, broad, roundly truncate.

Female.—Length 3 mm. Antennæ extending to the fourth abdominal segment, sparsely haired, pale yellowish; 14 segments, the fifth with a stem $\frac{1}{4}$ the length of the cylindric basal enlargement, which latter has a length thrice its diameter; terminal segment with a length four times its diameter and a short,

stout process apically, the latter a component of the segment. Palpi: first segment irregularly subquadrate, the second $\frac{1}{2}$ longer, the third a little longer than the second and the fourth $\frac{1}{2}$ longer than the third, slightly dilated. Mesonotum, scutellum and postscutellum dark brown. Abdomen mostly deep red, the dorsal sclerites somewhat fuscous, the short ovipositor pale yellowish. Halteres and coxæ pale yellowish; femora, tibiæ and tarsi mostly fuscous with three distal tarsal segments of the posterior legs yellowish white. Ovipositor about $\frac{1}{2}$ the length of the abdomen, the terminal lobes with a length over thrice the diameter and thickly setose. Type Cecid a2327.

The midge described above was reared by O. A. Johannsen, Orono, Maine, July 10, 1912, from reddish orange larvæ preying upon the false maple scale, *Phenacoccus acericola* King. The male is quite different from any American representative of the genus, while the female closely approaches that of *D. gillettei*, it being distinguished therefrom by a difference in color and the longer, more slender terminal antennal segment having a short, stout appendage with no indication of partial segmentation, the latter condition existing in *D. gillettei*.

Dicrodiplosis californica, new species.

Male.—Length 2 mm. Antennæ probably as long as the body, sparsely haired, yellowish brown; 14 segments, the 5th with stems $\frac{3}{4}$ and equal their diameters; the produced distal enlargement with a length about twice its diameter and a distinct constriction near the basal third. Palpi: first segment irregularly subquadrate, short, the second with a length only twice its diameter, the third a little longer, more slender, the fourth $\frac{1}{4}$ longer than the third and somewhat dilated. Mesonotum dark reddish brown, the submedian lines yellowish. Scutellum and postscutellum yellowish. Abdomen reddish brown, the basal segments yellowish; genitalia reddish. Wings hyaline, costa light brown, the third vein uniting with the margin just before the apex of the wing. Halteres yellowish transparent, reddish apically. Legs a fuscous straw; claws long, slender, strongly curved, the pulvilli as long as the claws. Genitalia: basal clasp segment long, stout; terminal clasp segment long; dorsal plate short, triangularly emarginate, the lobes broadly rounded; ventral plate moderately long, tapering, narrowly rounded.

Female.—Length 2 mm. Antennæ about $\frac{3}{4}$ the length of the body, sparsely haired, reddish brown; 14 segments, the fifth with a stem about $\frac{1}{4}$ the cylindric basal enlargement, which latter has a length nearly thrice its diameter; terminal segment only slightly produced, an obtusely rounded knob apically. Palpi: first segment short, subquadrate, the second with a length twice its diameter, broadly fusiform, the third about as long as the second, the fourth $\frac{1}{4}$ longer than the third, somewhat expanded. Mesonotum dark reddish brown, the submedian lines yellowish. Scutellum and postscutellum yellowish. Abdomen dark red,

the basal segments yellowish. Ovipositor about half the length of the abdomen, the terminal lobes with a length over twice the diameter, narrowly rounded. Other characters as in the male. Color characters from microscopic preparations. Type Cecid 1312.

The rather large, reddish brown species characterized below was reared in 1893 from a *Pseudococcus* species on *Solanum* at Riverside, California, and through the courtesy of Dr. Howard placed at our disposal for study. See the description of *D. helena* below for a statement of the differences between the two.

Dicrodiplosis helena, new species.

Gall.—Length 3 mm., subglobular, whitish, on the under surface of the leaf, opening on the upper surface.

Male.—Length 2.25 mm. Antennæ as long as the body, sparsely haired, fuscous yellowish; 14 segments, the fifth with stems $\frac{3}{4}$ and $1\frac{1}{2}$ their diameters; the distal enlargement narrowly oval, with a length $\frac{1}{2}$ greater than its diameter; terminal segment, the basal portion of the stem with a length twice its diameter, the distal enlargement produced, irregular, with a length thrice its diameter and tapering to a short, rounded apex. Palpi: first segment irregular, second with a length thrice its width, the third as long as the second, more slender, the fourth $\frac{1}{2}$ longer than the third, somewhat dilated. Mesonotum slaty brown, the yellowish submedian lines sparsely haired. Scutellum fuscous yellowish, post-scutellum brownish red. Abdomen sparsely haired, dark brown, the incisures and pleuræ brownish red. Genitalia fuscous. Costa dark straw. Halteres mostly fuscous yellowish. Coxæ and base of femora light straw, the distal portion of femora, tibiæ and tarsi mostly fuscous. Claws slender, long, unidentate, the pulvilli as long as the claws. Genitalia: dorsal plate broad, broadly and triangularly emarginate, the lobes broadly triangular; ventral plate moderately broad, deeply and triangularly emarginate, the lobes narrowly triangular; style long, stout. Type Cecid a2210.

This species was reared April 5, 1912, from subglobular galls on the under side of aspen leaves, *Populus tremuloides*, collected by Miss Cora H. Clarke at Magnolia, Mass., the preceding August. It is easily separated from the allied *D. californica* by the shorter distal enlargement and the decidedly longer distal stem of the fifth antennal segment. It is also quite different from *D. populi* reared earlier from a similar gall. We are not certain that this is the maker of the gall.

Itonida aphidivora, new species.

Male.—Length 1 mm. Antennæ $\frac{1}{4}$ longer than the body, thickly haired, fuscous yellowish; 14 segments, the fifth having the stems each with a length $2\frac{1}{2}$ times their diameter; distal enlargement ovoid, with a length nearly twice

its diameter. Palpi: first segment irregular, with a length twice its diameter, the second a little longer, irregular, the third longer than the second, more slender, the fourth $\frac{1}{4}$ longer than the third. Mesonotum reddish brown, the submedian lines yellowish. Scutellum and postscutellum yellowish. Abdomen reddish orange, the genitalia fuscous yellowish. Wings hyaline, costa light straw. Halteres pale yellowish, slightly fuscous subapically. Coxæ and legs a nearly uniform fuscous yellowish. Claws slender, evenly curved, simple, the pulvilli $\frac{1}{3}$ the length of the claws. Genitalia: dorsal plate short, deeply and narrowly incised, the lobes narrowly rounded and sparsely setose apically; ventral plate long, expanded distally, broadly and roundly emarginate, the lobes plainly slender and tapering distally.

Female.—Length 1 mm. Antennæ extending to the fourth abdominal segment, sparsely haired, fuscous yellowish; 14 segments, the fifth with a stem $\frac{1}{3}$ the length of the slender basal enlargement, which latter has a length $2\frac{1}{4}$ times its diameter; terminal segment produced, with a length four times its diameter and apically a stout, fusiform process nearly as long as the basal portion. Palpi: first segment irregular, the second broadly oval, with a length $\frac{1}{2}$ greater than its diameter, the third a little longer, slender, the fourth fully $\frac{1}{2}$ longer than the third, more slender. Face yellowish. Mesonotum dark brown, the submedian lines yellowish. Scutellum and postscutellum yellowish. Abdomen yellowish orange. Ovipositor short, the terminal lobes narrowly oval, with a length over twice the diameter and sparsely setose. Type Cecid a2316a.

The small midge described above was reared in some numbers July 11, 1912, from apple leaves infested by the rosy aphid, *Aphis malifolia* Fitch collected at Nassau, N. Y. This species was more numerous than an associated larger form, probably an *Aphidoletes*. It may be separated from the allied *I. sanguinia* Felt by the yellowish orange abdomen, the stems of the 5th antennal segment being equal and the fourth palpal segment a little longer than the third.

***Itonida putrida*, new species.**

Male.—Length 1.5 mm. Antennæ $\frac{1}{4}$ longer than the body, thickly haired, yellowish brown, yellowish basally; 14 segments, the fifth having the stems as long and $\frac{1}{2}$ longer than their diameters, respectively; distal enlargement with a length $\frac{1}{4}$ greater than its diameter; terminal segment produced, the distal enlargement broadly fusiform, with a length twice its diameter and a short, stout knob apically. Palpi: first segment subquadrate, the second a little longer, stouter, the third a little longer than the second, more slender, the fourth $\frac{1}{2}$ longer than the third, dilated. Mesonotum slaty brown, the fuscous yellowish submedian lines sparsely haired. Scutellum fuscous yellowish, postscutellum reddish brown. Abdomen yellowish orange, the terminal segments dark carmine. Genitalia fuscous yellowish. Wings hyaline, costa light straw. Halteres yellowish basally, reddish apically. Coxæ and femora mostly fuscous yellowish; tibiæ somewhat darker, tarsi dark straw; claws evenly curved, the pul-

villi a little shorter than the claws. Genitalia: dorsal plate broad, deeply and triangularly emarginate; ventral plate broad, broadly and roundly emarginate. Type Cecid a2264a.

This male was reared April 15, 1912, from a jar containing numerous larvæ of *Bolitophila cinerea* Meign. found in the trunk of a decaying birch. It is allied to *I. setariae* Felt, being separated therefrom by the short basal portion of the stem of the fifth antennal segment.

***Itonida aprilis*, new species.**

Male.—Length 2 mm. Antennæ $\frac{1}{2}$ longer than the body, rather thickly haired, fuscous yellowish; 14 segments, the fifth having the stems each with a length about $2\frac{1}{2}$ times its diameter; distal enlargement subcylindric, with a length nearly twice its diameter and slightly constricted near the basal third; terminal segment, distal enlargement somewhat produced, with a length thrice its diameter and obtuse apically. Palpi: first segment with a length over thrice its diameter, second a little longer, broader, the third longer and more slender than the second, the fourth $\frac{1}{2}$ longer than the third, nearly uniformly dilated. Mesonotum dark brown, the fuscous yellowish submedian lines sparsely haired. Scutellum dark reddish brown, postscutellum dark brown. Abdomen sparsely haired, dark yellowish brown. Wings hyaline, costa dark straw. Halteres fuscous yellowish; coxæ and legs fuscous yellowish, the tarsi somewhat darker; claws stout, strongly curved, the pulvilli about $\frac{1}{3}$ the length of the claws. Genitalia: dorsal plate short, deeply and triangularly emarginate; ventral plate long, broad, triangularly emarginate, the lobes short. Type C. 1414.

The males described above were captured in some numbers April 13, 1912, at Albany, N. Y. This appears to be one of the earlier spring forms and is related to *I. sanguinia* Felt. Nothing is known concerning its life history.

***Itonida resinicola* O. S.**

Larva.—Length 6 mm., stout, tapering at both extremities, a mottled, yellowish orange. Head skeleton, fuscous, chitinized; breastbone small, indistinct, posterior spiracles borne by submedian processes, heavily chitinized apically.

Twigs of pitch pine were collected June 5, 1912, bearing the characteristic pitch masses of this midge inhabited by numerous reddish orange larvæ, some of which have the posterior spiracles protruding above the surface of the pitch. Many, however, are well within the pitch mass and apparently remain in this condition for extended periods.

The habits of this species appear to vary markedly from those of *I. inopis* O. S., since midges of this latter species were reared

the latter part of May, practically none appearing later and there being no conspicuous exudations of pitch. The larvæ of *I. resinicola* have probably wintered in these pitch masses, resuming activity in the spring and producing at the present time large, fresh looking, white masses of pitch.

On the 17th larvæ collected June 12th had all withdrawn from the surface and were observed lying in the interior of the pitch mass against the wood and apparently in an oval cocoon. They remained in this condition until the 24th, at which time the pupæ had wriggled to the surface and disclosed imagoes, the exuviae protruding part way from the pitch mass. The head and thoracic portions of the exuvium are slightly and variably fuscous, quite different from the nearly uniform, densely pigmented exuvium of *I. inopis* O. S. There is no evidence of *I. resinicola* deserting the pitch mass and making resinous cocoons on the leaves, as is the case with *I. inopis* (see account of the latter in Journal Economic Entomology, 1912, 5: 368-69).

Cecidomyia ocellaris O. S.

Some exceptionally vigorous larvæ and one or two puparia of this species were received June 18, 1912, from Miss Cora H. Clarke, Magnolia, Mass.

The breeding jar containing this material has been under constant observation, and on July 17, 1912, an examination of three puparia showed that each contained a stout, white, apparently healthy larva. There seems to be no indication of an impending transformation. The puparia are oval, stout, brown, more or less irregularly reticulated and slightly ridged. The irregular ridged and reticulated appearance appears to be due largely to the arrangement of somewhat stouter, dark brown threads, which latter appear to perform no special function. One or two of these puparia were attached at almost right angles to the leaf surface, while a group of four or five lay side by side in a leaf fold. We have obtained puparia repeatedly without securing the midge and take this opportunity of expressing the hope that some entomologist will shortly be more fortunate and rear adults.